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ABSTRACT

The John Molson School of Business at Concordia University in Montreal has been addressing the need for new skills in aviation management for almost a decade through its International Aviation MBA, in partnership with the International Air Transport Association (IATA). The School set out in early 1999 to create a version of the program which could be largely delivered at a distance, anywhere in the world. This paper evaluates the technical and pedagogical decisions that formed the program, successfully launched in 2000, now graduating its first cohort and welcoming its third. On the technical side, after evaluating a number of commercial templates and courseware purveyors, the authors chose to develop a custom-made approach with a local provider, "Hypermedia-Builder." On the pedagogical side, drawing upon extensive experience in multimedia production, they have provided intensive support for faculty members, on both technical and pedagogical issues, as they develop and deliver their courses. Feedback from students and other data indicate that these efforts enabled the program to achieve its academic goals. The experience suggests a need for innovative approaches to the problem of evaluating technology-supported instruction. (Author)

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Evaluation of a High-end Distance Delivery MBA Program

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ED 479 451

Abstract

The John Molson School of Business at Concordia University in Montreal has been addressing the need for new skills in aviation management for almost a decade through its International Aviation MBA, in partnership with IATA. the School set out in early 1999 to create a version of the program which could be largely delivered at a distance, anywhere in the world. This paper evaluates the technical and pedagogical decisions which formed the program, successfully launched in 2000, now graduating its first cohort and welcoming its third.
On the technical side, after evaluating a number of commercial templates and courseware purveyors, we chose to develop a custom-made approach with a local provider, *Hypermedia-Builder*. On the pedagogical side, drawing upon extensive experience in multimedia production, we have provided intensive support for faculty members, on both technical and pedagogical issues, as they develop and deliver their courses. Feedback from students and other data indicate that the these efforts enabled the program to achieve its academic goals. Our experience suggests a need for innovative approaches to the problem of evaluating technology-supported instruction.

Context

For the past 10 years, the John Molson School of Business at Concordia University in collaboration with the International Air Transport Association (IATA) has offered an accredited MBA degree focussed specifically on aviation, responding to a growing demand for superior management skills in the industry. The International Aviation MBA (IAMBA) requires students, largely mid-level executives in airlines, airports, and civil aviation authorities, to be on campus for intensive study over a 13-month period. For students, the quality of the program must outweigh the substantial costs in tuition, accommodation in Montreal, and time away from their jobs. To overcome the latter 2 of these cost barriers, the School decided to create the Global version (GAMBA) of the IAMBA, as a primarily distance-delivered program. This paper documents the strategic and tactical decisions which led to an on-time, on-budget launch of this very rich multimedia program and evaluates the outcomes of these decisions.

Strategic and Tactical Decisions

Concordia has positioned itself as an urban university catering to the workplace in a number of senses: by offering programs that respond to market demand, classes outside normal working ours, flexible entry requirements, small classes and lots of contact with faculty. This is our niche, where we compete very well with older and more famous institutions; so abandoning it for large-scale off-campus delivery, via the web for example, would probably be a fatal mistake. Instead, we have experimented with teaching technologies within our niches, largely in support of on-campus courses. Since 1995, development of instructional technologies has been a key plank in the strategic plan of the John Molson School of Business. The plan took concrete shape not only in the development of the technical infrastructure, including a Centre for Instructional Technology, but also in the hiring of multimedia production staff, instructional designers to guide their work and that of faculty, and an educational technologist (Dicks) to lead the team (Dicks and Genova, 2000). Thereafter, major decisions like the ones reported below have crystallized from lengthy debate involving academic leaders, faculty, instructional designers and technical staff.

For our first major project, we decided to convert two well-established niche programs, the Executive MBA (EMBA) and IAMBA to Laptop U. format. As prestigious programs, operating outside normal constraints on hiring and tuition, we considered them the best vehicle for the School's flagship venture into teaching technologies.

At the time, we imagined that laptop operation would simply mean converting to multi-media format the materials contained in each of the course binders which students received at the start of term. As it turned out the binders contained little more than what students typically receive at the start of any traditional class: an outline, some reprints, maybe some problems or cases. Not surprisingly, IAMBA/EMBA faculty were creating class

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activities close in time to delivery, just as they do in other contexts. So at the outset the laptops, and the fully-wired intelligent classrooms we built for them, added little pedagogical value.

When we decided that we needed to reduce the accommodation and opportunity costs of the IAMBA by creating a distance version, we had to construct an entirely new strategy. Our target audience expected high-quality courseware commensurate with the substantial program tuition, and capable of sustaining their learning through a long period of remote study. We would have to put a lot of work into course materials so that as much as possible could be loaded onto student laptops before each term started. Our experience and analysis of the literature (e.g. Gibson, 1998) indicated that if we left students out on the end of the wire for excessive periods of time, they would become increasingly isolated and drop out. So we needed to balance the benefits of regular face-to-face contact with the costs of travel. Finally, if we planned to operate globally, ensuring students instant access to materials anywhere/anytime, we would want to reduce reliance upon potentially costly, slow, and unreliable telecommunications.

In view of these factors, we decided to distribute the program's 18 courses over 4 terms (Figure 1). Our plan called for students to visit the campus for two weeks of intensive classroom work, then return home to work on 20 weeks of material loaded onto their laptops.

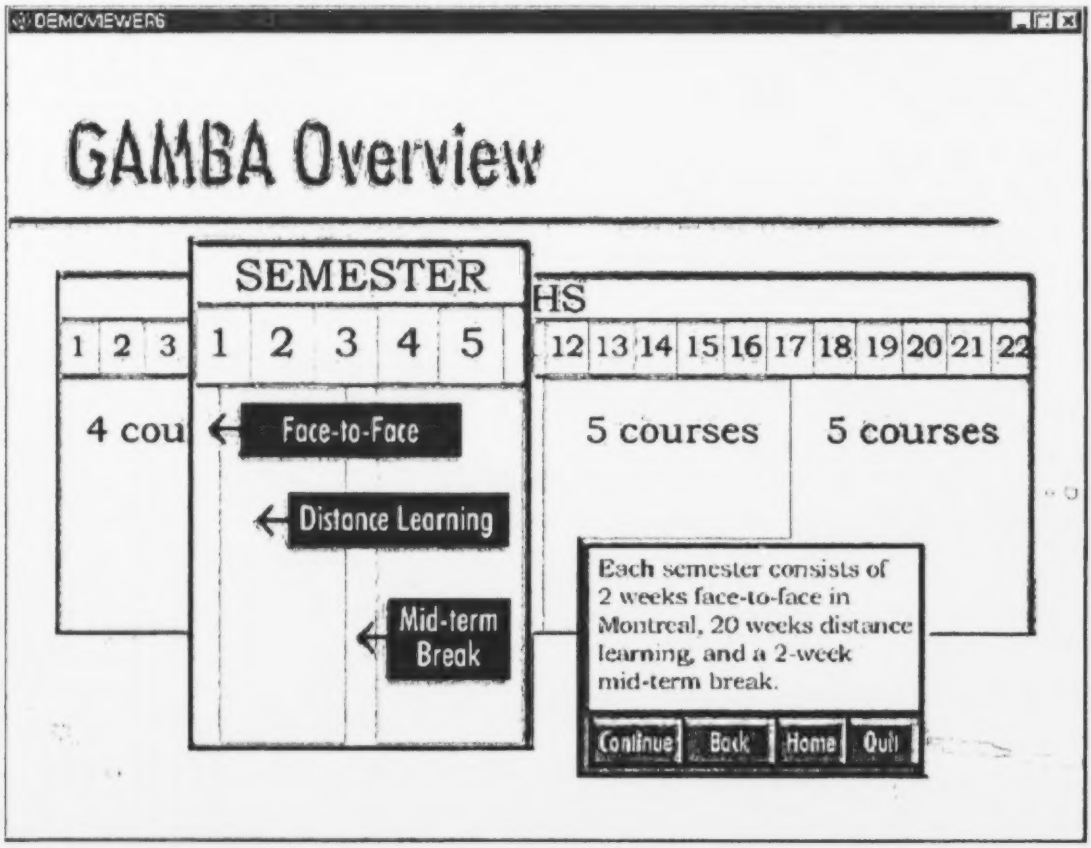

Figure 1. The Global version of the International Aviation MBA – 18 courses covered over 22 months, divided into 4 semesters. Superimposed is a typical semester which consists of 2 weeks on-campus followed by 20 weeks of study at a distance. This and subsequent figures are excerpts from our program demo on CD-ROM.

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While off-campus, students would use our FirstClass groupware (Figure 2) to maintain contact, and to access or deliver assignments.

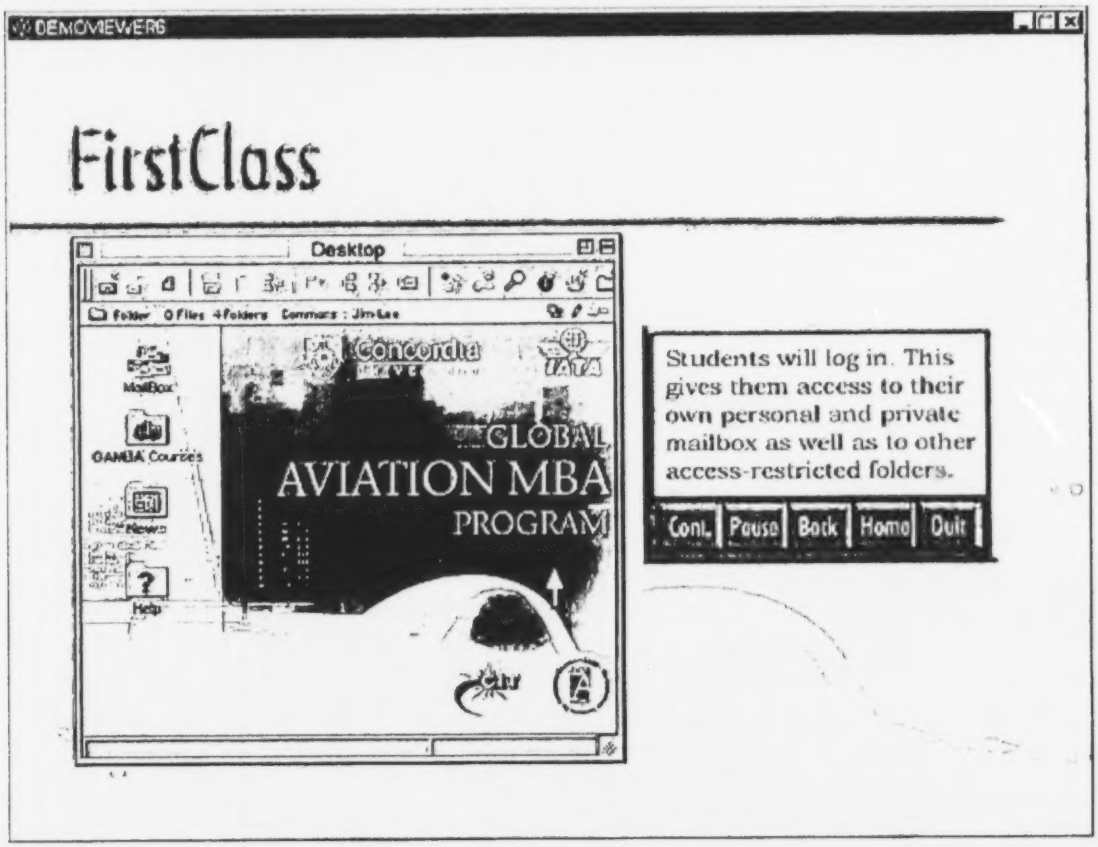

Figure 2. Desktop (in demo format) for the FirstClass groupware system, customized for the Global program. FirstClass is used for e-mail and chat communication, group work, assignments and instructor feedback.

To prepare, deliver and monitor courseware, we chose a hybrid technology which facilitates the creation of high-quality multimedia materials accessible on hard drive, CD-ROM or internet (Figure 3).

On the Pedagogical Side

In the run-up to our laptop projects, we conducted a number of pilot studies to experiment with different multimedia environments and development techniques. In this we were fortunate to have at Concordia one of the best Educational Technology programs in the world. Its Masters students are encouraged to complete their course projects and internships on real projects for real clients. Largely as a result of this practical experience, graduates go to work with prominent firms - Bombardier, the Canadian Space Agency, Soft Image, Nortel, Pfizer, Deloite Touche - as training developers, change managers, and so on. We engaged a half dozen of these students to develop prototypes for a distance course on Operations Research, and a web-based course on Personal Finance.

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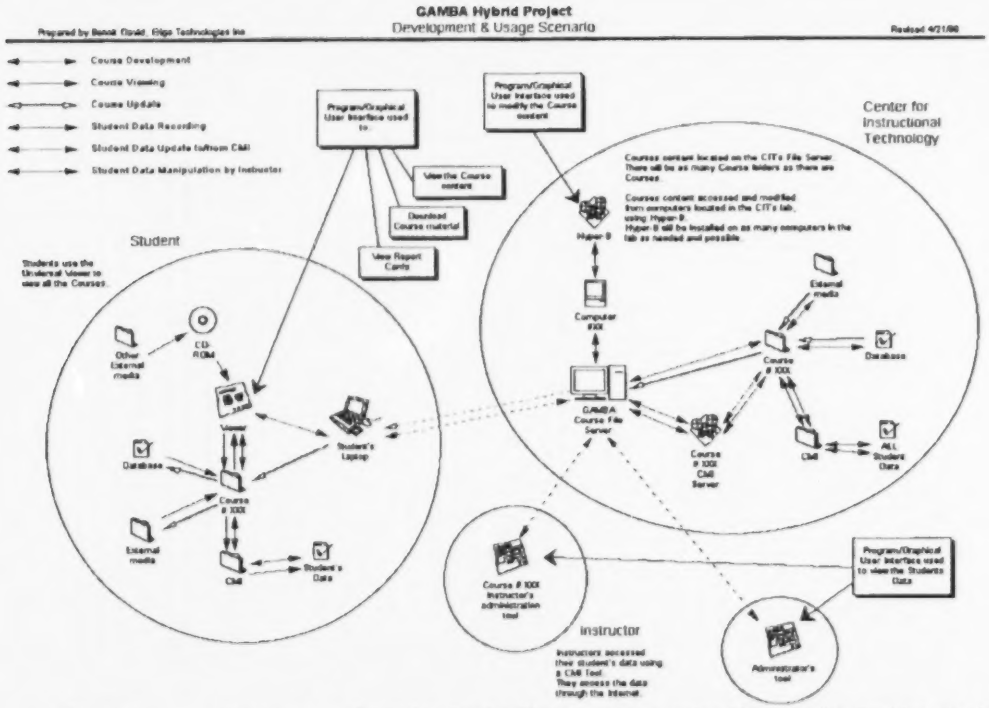

Figure 3. Hardware configuration for the Global program, using Hypermedia-Builder. The large circle on the right represents the course development and management component; the smaller one on the left represents the student laptop loaded with course materials but also in contact with the management component.

On the pedagogical side, these pilot studies taught us the value of providing a rich learning environment for students working at a distance; and we discovered the difficulties of getting faculty to generate the required material. Anyone familiar with corporate training program development knows that one of the most challenging tasks for the developer is creating a good working relationship with the subject matter expert (SME) so that information flows accurately and on time from expert to curriculum. Not surprisingly, this task can be just as difficult with that archetypical SME, the faculty member. In traditional university teaching, faculty work within a very flexible framework, adding, subtracting or modifying materials and methods on the fly. Like other SMEs, they are accustomed to developing and delivering their wisdom in familiar formats and time frames which typically do not match those imposed by an independent materials developer (Rickard, 1999). In contrast, multimedia production demands that instructional design be made explicit, that content be finalized long before delivery, in close collaboration with a multiskilled team (Dicks, 2000).

Our pilot projects and previous experience in industry convinced us to strengthen the SME-developer relationship by matching each faculty member with an experienced instructional designer. For this we hired, on contract at market rates, graduates of our MA Educational Technology program with a good mix of creative and social skills. Faculty, as part of their course contract, were paid a development stipend - an additional 40% of the regular on-campus fee. These teams began awkwardly, with faculty asking "what can the technology do?" and instructional designers starting from the opposite pole: "what do you want to teach?" But they quickly warmed to close, creative partnerships. As we grew more practiced, we also created a course-bidding process to locate faculty with the interest and ability to work in this challenging new environment.

On the Technical Side

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On the technical side, having an established laptop program proved a great advantage: from the start we were able to define our students' off-campus computing environment. One of our key goals in the pilot projects was to create a seamless interface, so students would be able to participate in a variety of pedagogical activities without worrying about the underlying software. Our experiments uncovered some glitches in this respect with Web-CT, a platform favoured by the University's central information technology establishment.

Accordingly, we looked at a very sophisticated, expensive design and delivery tool called *Hypermedia-Builder* (Hyper-B; Figure 3), from Erigo Technologies Inc., Montreal. Hyper-B was developed by another of our Educational Technology graduates in response to technical and logistic problems he had encountered in designing multimedia teaching materials. Adopting a customized local product would entail much higher risks and costs, and lower compatibility compared with an off-the-shelf platform like Web-CT. However, our technical and pedagogical experts agreed that the risks were offset by Hyper-B's advantages. First it is designed for use by instructional designers, as its interface shows (Figure 4).

Instructional designers can learn its basic functions in a half-day, and input most material directly into a wide variety of formats. Second, the interface operates on a database, so that existing materials can be re-assembled, re-used, or revised with minimal effort. Third, the database is accessed by a Viewer (Figure 5) which functions much like a browser; materials can be recast as a new instructional package by simply changing the features of the Viewer. Fourth the database permits exceptional navigation and search features (Figure 5). Fifth, the upside of customization is that Hyper-B gives our program an exclusive panache, a more sophisticated image than available from standard course templates.

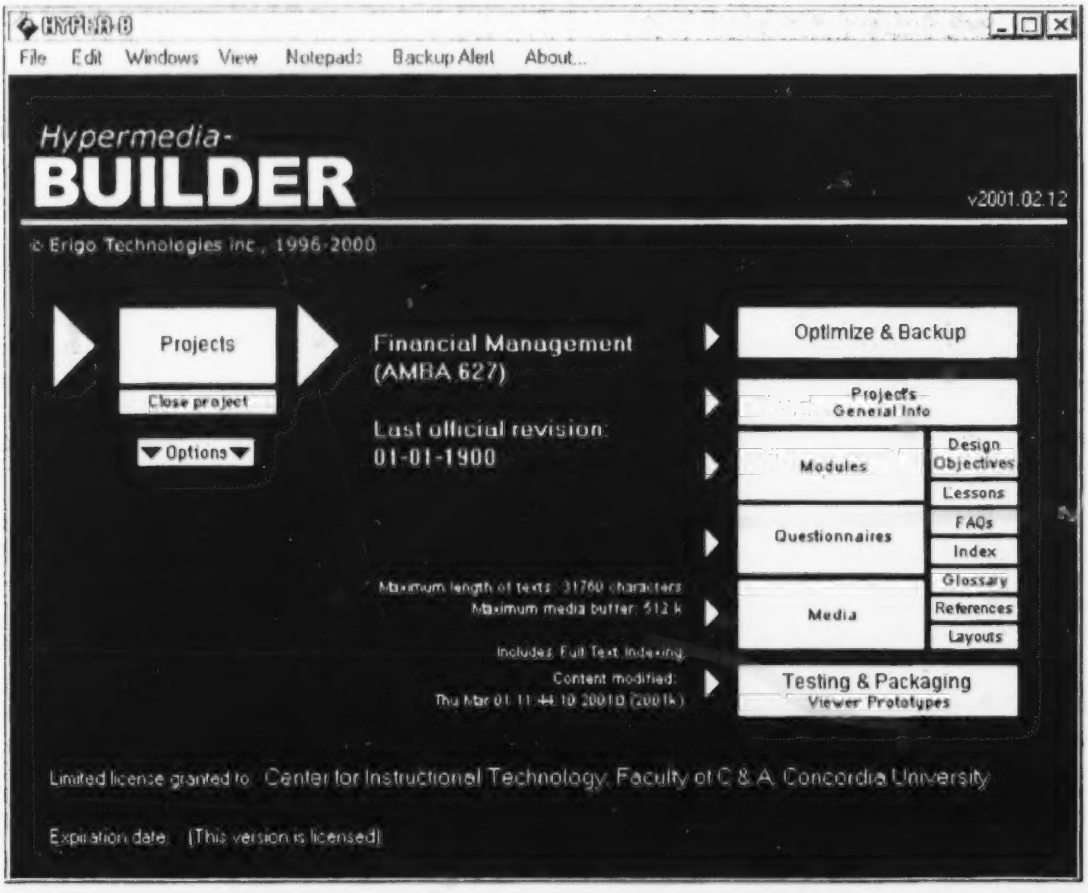

Figure 4. Main menu for Hypermedia-Builder, course development and delivery software specifically tailored for instructional designers.

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Last but hardly least, Hyper-B offers exceptional flexibility in configuring course delivery. Initially we leaned towards a web-based course along the lines offered by other platforms. This would potentially create line-cost and reliability problems if students lived outside North America, worked at home, or traveled; we expected a global program to encounter all these constraints. And so we opted for the configuration which loaded the course materials on the laptops, but still permitted remote updates of everything, and interactive course management as well (see Figure 3).

Faculty and instructional designers established their own modus operandi with an objective of completing the courseware to meet a strict deadline, so that alpha and beta testing could be conducted before delivery. Our schedules allowed them about 4 months from start to delivery for testing, and another month for revisions. After that, a semester's worth of courses would be loaded onto the laptop hard drives, together with any supportive software. The on-campus session for first term was extended to include distribution of the computers, plus hardware and software training. We designed the face-to-face session to establish an esprit de corps which, with regular communication via our FirstClass groupware, would help sustain students through the long distance-delivery session. Once they returned home, the students maintained weekly contact with their instructors for the next 20 weeks by means of FirstClass groupware. In addition, we hired one of our senior instructional designers to coordinate the flow of communications. We also used FirstClass to send and receive assignments and tests. Finally, to handle complex nomenclature, we provided each student with a hand-held scanner driven by the laptop with which they could submit handwritten exercises.

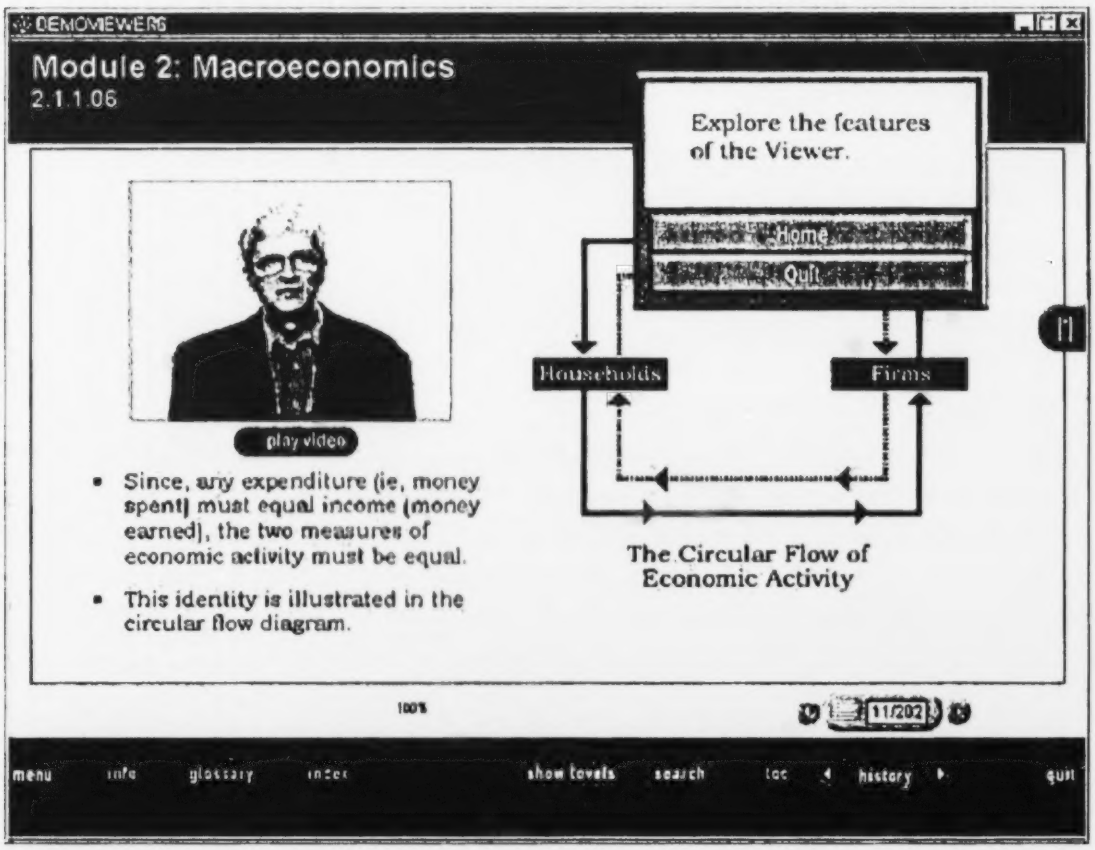

Figure 5. Sample screen (in demo format) from the Economics course, showing a video component, text, graphic and extensive navigation tools accessed by buttons at bottom of screen.

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Courseware Production

.On average, preparation of a single course required 50 days of an instructional designer's time and somewhat less faculty time. From the outset, courseware design varied considerably with the content and faculty teaching styles. Our first four courses, covering the basics (Accounting, Economics, Human Resources and Statistics) relied heavily on text and textbook; and we overestimated the volume of weekly exercises required to keep students moving. Subsequently, we lightened the assignment load, and started to vary courseware format as the whole team gained confidence and skill. Now, with 18 courses completed, our repertoire ranges from a simple wrap-around (text-based design supplementing a textbook), to wrap-around enriched with interactive activities, to videotaped lectures reinforced with interactive commentaries. The content of the courses varies widely over different disciplines, different types of knowledge, skills and activities. We have learned to adjust our pedagogical approaches to this variety by applying appropriate technological support (the Viewer, FirstClass, audio and videoconference) instead of trying to hammer everything into one template.

Evaluating our Experience

We started the program with a deliberately modest cohort of 15 students, 13 of them men. They came from 10 different countries, from Ecuador to New Zealand, and most were already working in the aviation sector. They are a remarkably diverse, talented and enthusiastic crowd; probably as a result, we have had no dropouts for academic reasons (two have interrupted studies due to the impact of September 11 events on the industry). This cohort is now graduating ; a second cohort has completed first year; and a third is just beginning.
From the outset we have conducted formative evaluations on the courseware, technology, and pedagogy, as well as summative evaluations of faculty performance. Feedback on courseware and pedagogy has been very helpful in making improvements for instructional design in general, and specifically for courses now being offered for the second and third time. As we anticipated, our students expected the program to provide much more than a one-way flow of information. Consequently, they reacted best to course designs which provided some choice in activities and pacing, interaction with the instructor, and what the course coordinator has called 'proactive counselling'- friendly inquiries about their progress and problems (McBryde, 2002). This reinforces a personal observation that the key feature of the program may be 'just-in-time' instruction. The real value of our sophisticated courseware development and delivery technology may well be that it provides in one place just what the student needs, just when needed.

Our technology performed extremely well, with the few initial glitches easily corrected through the internet with our built-in update function. In fact, after the first two terms we dropped technological issues from our evaluative questionnaire because the effort outweighed the information gained. During the first term, students, faculty and the course coordinator all rapidly learned to deal with different roles played by their laptops, the Viewer, FirstClass, the scanner. Both the Viewer and FirstClass proved to be remarkably user friendly. Ironically, hardware- specifically the laptop hard drive- has been the component most prone to failure (McBryde, 2002).

Conclusion

As a late entrants into distance education, we in the John Molson School of Business have drawn upon the experience of others to plan carefully. Our teaching technology strategy does not target the mass market, but rather a very specific niche. It does not depend upon the initiatives of individual faculty members to supply the range of skills required to program or even fill and modify templates, but rather requires close collaboration of dedicated team members with differentiated expertise. Its time lines are neither open nor flexible. Course preparation has to be completed long before term starts, even though revisions can in fact be made anytime thereafter. Faculty have to provide agreed materials on an agreed schedule, and sign off on completed materials by agreed dates. Our technology is not low-cost off the shelf but tailored to our needs at substantial expense which must be recovered in added value. Part of that added value lies in special features - a sophisticated image, impressive functionality. Part lies in more tangible benefits, like ease of revision, portability of materials to other applications, and the almost complete elimination of the programmer role, thus considerably reducing the risks of inaccurate or untimely communication in the production phase.

Have we succeeded? We can answer in several ways. First, we have no dropouts for academic reasons in the first cohort, in spite of a very mixed clientele. Esprit de corps is such that the first cohort has even asked that we add a final visit for graduation. Secondly, students, faculty and instructional design teams are generally pleased with the quality of the courseware and instruction. Thirdly, we have attracted a second and third cohort. Finally, if 'just-

in-time' delivery is indeed a key feature in the program's success, we should be examin ing the role of opportunity cost- rather than amount or speed of learning for example - when we evaluate technology supported instruction.

For all the participants, this has been a very risky enterprise, in time, money and effort. Especially for faculty who have invested their time disproportionately to master new design skills which will affect the way they teach, whether they use technology or not.

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